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Author:
MacMillen, Robert D.

Title:
Black horse of the sea

Place:
New York
Date:
[etc., etc., 1929]

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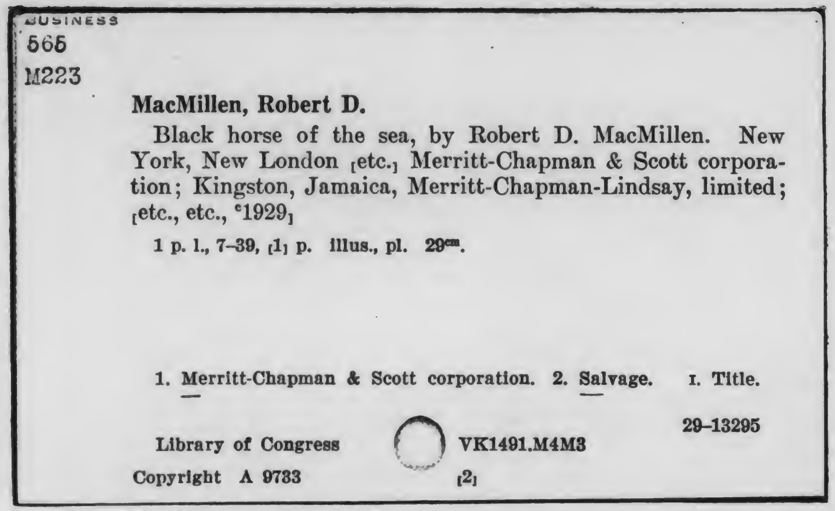

BUSINESS
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MacMillen, Robert D.

Black horse of the sea, by Robert D. MacMillen. New York, New London [etc.] Merritt-Chapman & Scott corporation; Kingston, Jamaica, Merritt-Chapman-Lindsay, limited; [etc., etc., °1929]

1 p. l., 7-39, [1] p. illus., pl. 29cm.

1. Merritt-Chapman & Scott corporation. 2. Salvage. I. Title.

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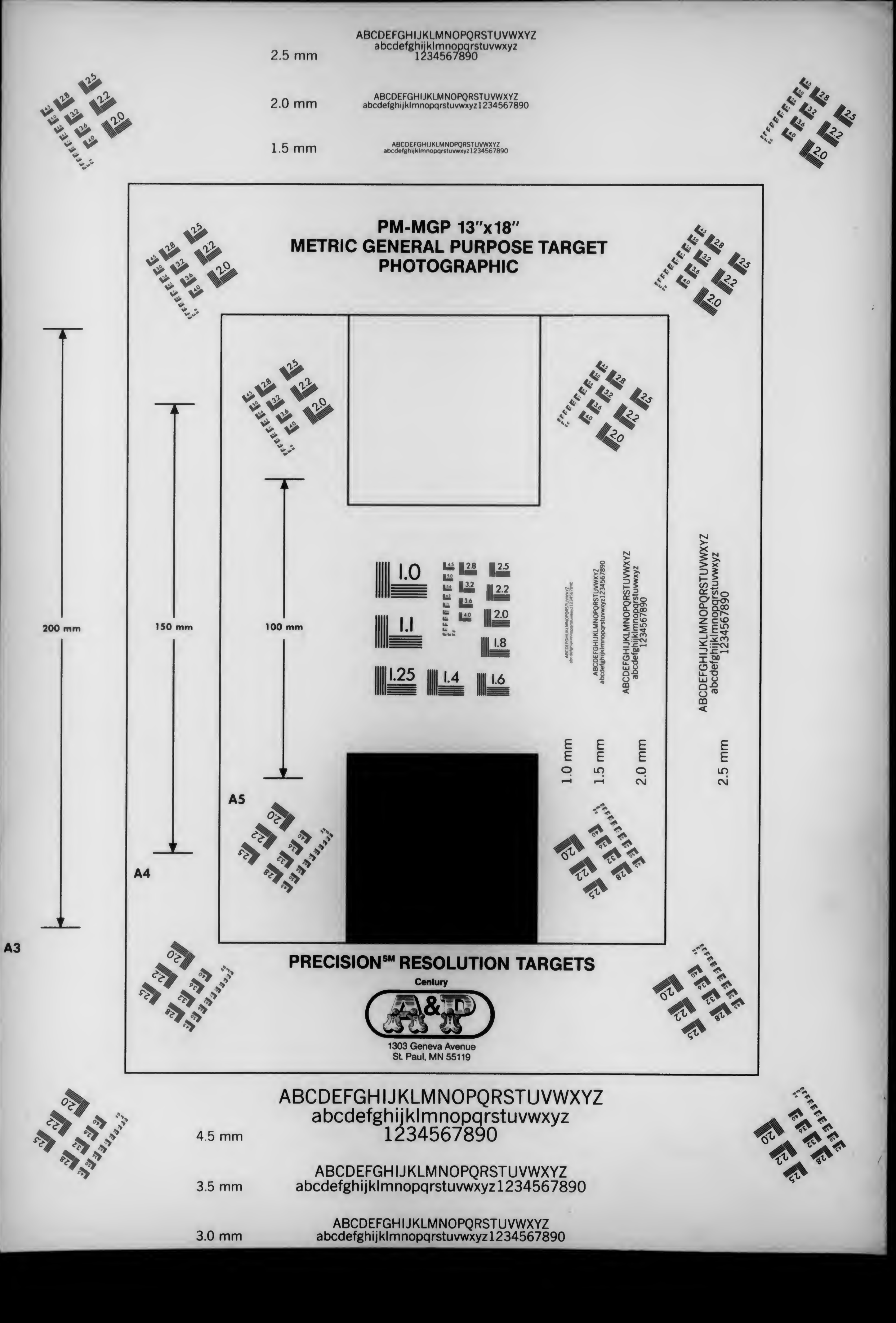

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BLACK HORSE OF THE SEA

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in the City of New York

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Given by
William H. Baker.

BLACK HORSE OF THE SEA

By

Robert D. MacMillen

Merritt-Chapman & Scott Corporation
Executive and General Offices
17 BATTERY PLACE, NEW YORK

Branch Offices
NEW LONDON BALTIMORE NORFOLK KEY WEST
SAN FRANCISCO SAN PEDRO, CAL.

Merritt-Chapman-Lindsay, Limited
Kingston, Jamaica

Merritt-Chapman & Scott, Limited
Montreal, Canada

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William H Baker
6-18-29

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by
ROBERT D. MACMILLEN
NEW YORK

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The Barkentine ANTIOCH *was beyond help; but ten hours of incredible effort saved her crew of seven.*

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Gift of
[illegible] J. Baker

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by
Robert D. MacMillen
New York

D 565
M223

The Barkentine Antioch *was beyond help; but ten hours of incredible effort saved her crew of seven.*

"DON'T GIVE UP THE SHIP"

"THEIR BATTLES HAVE BEEN NOT WITH HUMAN ENEMIES BUT WITH THE INHUMAN FORCES OF WIND AND WAVE"

HEE July 17, 1929
GSP " 23 "

BLACK HORSE *of* THE SEA

For nearly seventy years, ships carrying the mark of a "Runaway Black Horse" have plied the coastal waters of America, and of many distant ports besides. It is a strange symbol for ships, perhaps, with this un-nautical device, yet it is known to seafaring men the world over and, for them, has a particular significance.

¶This house flag of the MERRITT-CHAPMAN & SCOTT CORPORATION was then—and still is—the symbol of a service. When first it was used, Telegraph, Telephone, Radio, and other marvelous developments in communication either were undreamed of or only in their beginnings.

¶The Coast Guard Service as we now know it did not then exist. Salvage service was maintained mostly by the marine underwriters and all along the dangerous reaches of the Long Island, New Jersey, New England and other Coasts, the "Underwriters Agents" were constantly on watch.

¶At the first sign of a ship in distress, these men had their orders to "Get immediate word to Headquarters if you have to kill a horse". And so, out of the traditions of its immediate predecessors, this house flag of MERRITT-CHAPMAN & SCOTT CORPORATION was born.

¶Few records now remain of this odd "pony express of the beaches" and of its exploits, but legend credits it with amazing feats of speed and devotion to duty.

¶In 1860, when the house flag which now distinguishes the fleet of the MERRITT-CHAPMAN & SCOTT CORPORATION first was broken out by the *Henry W. Johnson,* a Gloucester mackerel fisherman and a salvage ship of parts, the world of navigation still was feeling the pangs of its growth to modern stature.

¶The business side of shipping, even then, was well organized, though physical equipment gave little more than a pioneer's promise of present-day fulfillment. Maritime laws and customs were old and established. The insurance of risks on "Marine Adventures" had been practiced for quite four hundred years. But the kindred activities of salvaging distressed ships and their cargoes, and of coastal life saving, existed only in a crude state, under the wing of the marine underwriters.

¶Most of the shipping of that time was carried in great sailing vessels. Every major port was a forest of masts. The days of pitch-pine fuel had been ushered in by the *City of Savannah* only a bare forty years before, and, for many years to come, steamships were to carry auxiliary sails to assist their engines. Salvage ships, likewise, were sailers, best equipped for their work not by their meagre

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This huge traveling crane, blown by a storm from its place on a New York coaling dock, was promptly set back by the combined efforts of the Floating Derricks COLOSSUS *and* CENTURY. *Few burdens ever are encountered that are too heavy or bulky for such a bit of teamwork, though as many as four derricks together often have been used.*

The Salvage Steamer RESOLUTE *is a famous news character, well-known in every American port. She thrives on hard work and nasty weather.*

gear but by the long experience of their crews in salvage, their daring seamanship and willingness to risk their vessels and their pay on the success of their efforts.

¶Mechanical progress was definitely on the way, however, for in June of that very year of 1860 the immortal Steamer *Great Eastern* began a long reign as Queen of The Seas, with her vast bulk and her marvelous record of an eleven-day crossing. Scores of ships today eclipse the *Great Eastern* in size, but she was then and for decades a luxurious miracle of engineering, 692 feet over all and 83 feet in the beam—118 feet, in fact, over the paddle boxes. This early predecessor of our sea-going hotels cost the then incredible sum of $4,000,000. Like other ships of the day, she carried auxiliary sails, five masts of iron and one of wood, though her four paddle-engines and four propeller-engines were expected to develop 11,000 horse-power. Her initial start, made in September, 1859, was, however, a failure. While still floating in the Thames, there was an explosion which wrecked her machinery and laid her up for many months before she could sail across the sea and dock, triumphantly, in her berth at New York Harbor. So that, even for the best ships of the day, mechanical imperfections made difficulties which drew increasingly on the existing salvage resources and stimulated new and valuable developments such as the additions, later made to the fleet, of small but powerful salvage steamers.

¶Those were the primitive days, too, before SAMUEL PLIMSOLL set his Plimsoll-mark or load line at the waist of all ships and before many Governments had begun seriously to regulate shipping. Indeed, it was the prevalence of under-

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¶By 1881, the Cunard Line's *Servia* had set the new fashion for steel hulls in Atlantic service, though it was not until seven years later that the Inman Line's *City of New York* crossed the ocean under twin-screw propulsion. The great technical advancements of shipping, therefore, have followed the advent of this Company in 1860. They came swiftly when once they had started and, in their coming, revolutionized both harbors and deep-sea transit.

¶Cruising range and cargo space crept up and up and crossing time dropped down until, at last, there was some fair adjustment to the changing tempo of the times, not only at sea but in 'longshore facilities as well. With the growing size of ships, channels constantly had to be widened and deepened, shipping lanes to be cleared and safeguarded for heavier traffic, and docks to be modernized and enlarged. As the earning power of ships increased and the value of labor rose, better engineering design and more mechanical equipment were insistently demanded to save waste in these vital factors. Once again, therefore, there was logical reason for this organization to broaden its service to shipping and, on a large scale, embark in the design and building of water front improvements. Activities in these directions justified, and, in fact, made necessary the addition of more and more specialized equipment to the plant and of expert personnel to the forces, until today there is hardly an engineering service in the entire marine field in which the Company does not take an active and useful part.

The Salvage Steamer RELIEF *is the largest vessel of the Black Horse fleet. She is noted for salvage and trans-ocean towing exploits, in Atlantic and Caribbean waters.*

The self-propelled Derrick Lighter CHAPMAN BROS. *is a combined salvage vessel and hoisting derrick. Her boom is lowered and housed before putting to sea.*

¶All users of the principal ports receive economic benefits from the great facilities developed to provide Salvage, Long Distance Towing, Heavy Lighterage and Heavy Lifting Service of the most advanced sort. Modern steamships must have such facilities to carry the heavy freights which are the backbone of their business. American manufacturers of heavy machinery must have them to compete in the markets of the world.

¶Out of the long and intimate association of this Company with the shipping world has grown an unique type of engineering to which the best experts of nearly three-quarters of a century have contributed. These contributions have been not only of methods but of design, for the craft utilized are perhaps the most versatile ones afloat, in the hands of their specialized crews, turning from one of these tasks to another with ready adaptability.

¶It would be easy, though perhaps tedious, to tell the story of these many years in the mounting totals of floating tonnage, of ships salvaged, of hundreds of men employed; or of rock moved, or concrete poured, or of bridges and docks that were built; but the purpose of this book is to show that old organizations keep young and sturdy simply by continuous development with their times.

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What Is Salvage Service?

A SALVAGE service is a service which is voluntarily rendered to a vessel in need of assistance, and is designed to relieve her from distress or danger, either present or to be reasonably apprehended; and salvage is the reward or compensation allowed by the maritime law for service rendered in saving maritime property, at risk or in distress, by those under no legal obligation to render it, which results in benefit to the property, if eventually saved.

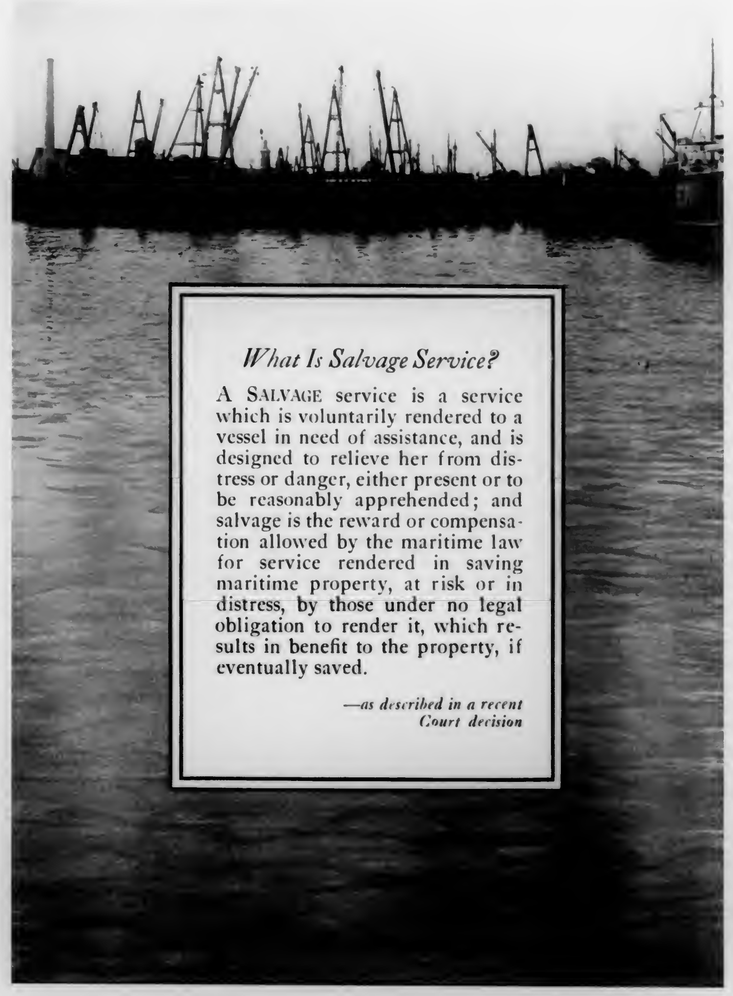
—as described in a recent Court decision

"Don't Give Up the Ship"

WHEN LAWRENCE signalled: "Don't give up the ship", he won an undying place in naval history; but the same bull-dog tenacity has characterized a long line of seamen whose names are all but unknown outside the confines of their own grim trade, and the shipping trade they have served. These men are the Salvage Officers. Their battles have been not with human enemies but with the inhuman forces of wind and wave.

❡Once, in the days before Ship Salvage became almost a separate science, with a technique of its own, a distressed ship was a lost ship in a great majority of cases. Safeguards were crude and feeble; channels had hidden perils; a sailing vessel, its masts carried away by a gale, was easy prey for the battering waves. And even now, when steel ships are staunch as a rock, when powerful engines supply driving force, when shipping lanes are almost constantly patrolled and electrical devices keep watch with more than human care, marine disasters still occur. But it is interesting and illuminating that nowadays a ship in distress is not always given up for lost but is simply "a ship in distress."

❡The world record of marine disasters for May 1st to July 1st, 1928, lists 332 marine casualties. Less than 100 of these occurred in American waters; the remainder were scattered. Damage varied from "slight" to "total loss", but it is significant that of the total number only one is listed as "Abandoned" and that one sank at sea.



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Every one of these name boards represents a valuable vessel in distress and to aid which the Black Horse Fleet has gone; these are only a few of hundreds of vessels.

¶Nearly four per cent are reported as actually "sunk". About thirty-one per cent are classified as "aground," "ashore" or "stranded". Fifty-six of the one-hundred-and-three vessels in these two classifications already were floated and doubtless many others since have responded to salvage efforts.

¶Causes assigned by the owners may roughly be classified as follows: Nearly thirty-four per cent of the casualties resulted from collisions; as stated, about thirty-one per cent were "aground" or "stranded"; about fourteen per cent were caused by mechanical disabilities, and nearly nine per cent by fires and explosions. About four out of each ten of the vessels specifically reported, or implied, hull damage of greater or less extent. Information available on the remainder does not permit of definite classification.

¶These figures are meant to be indicative only, not necessarily typical; they can only hint at the incredibly hard and varied conditions met by the rescue expedition. It is said by veteran Salvage Officers that no one set of circumstances ever has been duplicated in the nearly three-quarters of a century of MERRITT-CHAPMAN & SCOTT experience; but the trained and proved personnel, the equipment that has been perfected, the methods that have been evolved, all have made it possible to save millions of dollars in cargo value and hundreds of ships which, otherwise, might never have sailed again.

¶On the walls of the Company storehouses at New London, Connecticut, and Staten Island, New York, someone with a touch of historical fancy has nailed the name-boards of distressed ships. Relatively few are there—a half hundred or so, perhaps. Many of the names are lost to the memory of all but old-time shipping men and marine underwriters. In the Company's offices in New York, also, is an interesting museum of mementoes, each reminiscent of some tense and speedy voyage to the side of a ship in distress. Each of the vessels numbered in this quaint gallery speaks to the salvageman of some notable accomplishment in the saving of life, or property, or both—of a bitter battle won.

¶The story of marine salvage work for so long a period would fill volumes; even a list of notable rescues would prove unduly prolonged. A few photographs of typical situations, therefore, must take the place of more detailed records, thus draining much of the color out of the picture. The reader will not know, for example, when he sees the name of the rescued 4850 ton *S. S. L'Amerique,* that CAPTAIN ISRAEL J. MERRITT, one of the founders of this organization, remained at his post on this ship for ninety-three days until at last it rode again at its anchor, safe in its natural element. Nor when he sees here the name of the good ship *Louise H. Randall* that its namesake, the wife of its Captain, was taken from the crosstrees with her husband and the rest of the crew of nine, in the midst of one of the worst gales the treacherous shores of Long Island ever had known. MRS. RANDALL later wrote a little book about their common experiences, dedicating it to the heroism of CAPTAIN MERRITT and his brave men, who came to their rescue in a lifeboat, tossed like a chip on the waves, without the loss of a life. The vivid picture MRS. RANDALL paints, the fervour of her words, all prove how forlorn was the hope which triumphed.

¶On other pages will be found illustrated later phases of salvage practice which show the magnitude of modern projects. These newer methods, growing out of bigger vessels, faster and more crowded water traffic, expanding foreign and domestic water-borne trade, bring into play every resource of experience, equipment and personnel that it has been possible to build up.

¶More than a hundred vessels of varied type now sail under the MERRITT-CHAPMAN & SCOTT flag. Upward of fifty construction projects are under way. To plan and conduct these operations, more than two thousand five hundred persons are employed. Base stations are located at New York, New London and Norfolk on the east coast, at San Pedro, California, on the west coast, at Key West on the Gulf, and at Kingston, Jamaica, B. W. I. From these headquarters, with their docks and storehouses of specialized gear, are conducted not only the salvage operations but the large engineering projects and the heavy lifting business which now occupy so substantial a part of the Company's energies.

S. S. STEELMAKER, *entering New York Harbor after stranding in the Pacific, 700 miles below the Equator. Rescued by the Salvage Steamer* PEACOCK, *after the longest salvage voyage on record, 9727 miles.*

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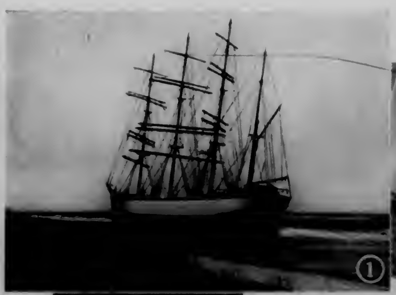
¶The story of marine salvage work for so long a period would fill volumes; even a list of notable rescues would prove unduly prolonged. A few photographs of typical situations, therefore, must take the place of more detailed records, thus draining much of the color out of the picture. The reader will not know, for example, when he sees the name of the rescued 4850 ton *S. S. L'Amerique*, that CAPTAIN ISRAEL J. MERRITT, one of the founders of this organization, remained at his post on this ship for ninety-three days until at last it rode again at its anchor, safe in its natural element. Nor when he sees here the name of the good ship *Louise H. Randall* that its namesake, the wife of its Captain, was taken from the crosstrees with her husband and the rest of the crew of nine, in the midst of one of the worst gales the treacherous shores of Long Island ever had known. MRS. RANDALL later wrote a little book about their common experiences, dedicating it to the heroism of CAPTAIN MERRITT and his brave men, who came to their rescue in a lifeboat, tossed like a chip on the waves, without the loss of a life. The vivid picture MRS. RANDALL paints, the fervour of her words, all prove how forlorn was the hope which triumphed.

¶On other pages will be found illustrated later phases of salvage practice which show the magnitude of modern projects. These newer methods, growing out of bigger vessels, faster and more crowded water traffic, expanding foreign and domestic water-borne trade, bring into play every resource of experience, equipment and personnel that it has been possible to build up.

¶More than a hundred vessels of varied type now sail under the MERRITT-CHAPMAN & SCOTT flag. Upward of fifty construction projects are under way. To plan and conduct these operations, more than two thousand five hundred persons are employed. Base stations are located at New York, New London and Norfolk on the east coast, at San Pedro, California, on the west coast, at Key West on the Gulf, and at Kingston, Jamaica, B. W. I. From these headquarters, with their docks and storehouses of specialized gear, are conducted not only the salvage operations but the large engineering projects and the heavy lifting business which now occupy so substantial a part of the Company's energies.

S. S. STEELMAKER, *entering New York Harbor after stranding in the Pacific, 700 miles below the Equator. Rescued by the Salvage Steamer* PEACOCK, *after the longest salvage voyage on record, 9727 miles.*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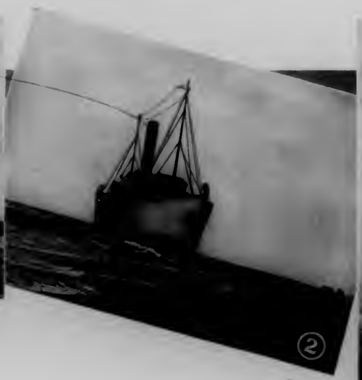
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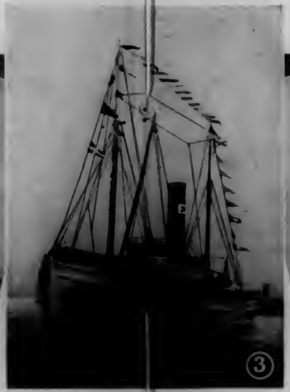
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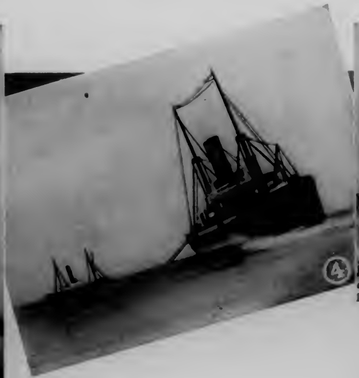
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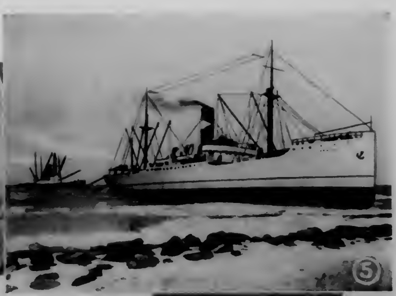
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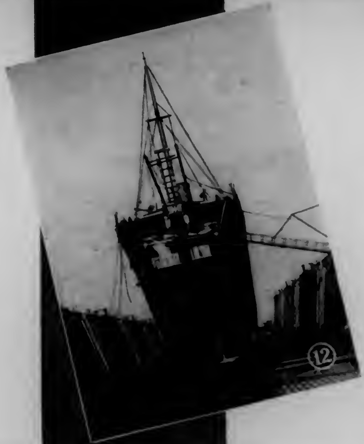
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1 *Bark* **Puritan**, *driven ashore off Bellport, Long Island, during northeast gale. Successfully floated.*

2 *S. S.* **Nicholas Cuneo**, *stranded on Long Island, in thick snowstorm; successfully floated, as were three others in same storm.*

3 *The* **I. J. Merritt**, *newest vessel of the salvage fleet and noted for long distance towing exploits.*

4 *S. S.* **Harburg**, *ashore on Long Island in fog, the* **I. J. Merritt** *standing by. Successfully floated.*

5 *S. S.* **Mayari**, *stranded on Hart's Island. Salvage Steamers* **Resolute** *and* **Chapman Bros.** *with two 15 inch cables aboard.*

6 *Tanker* **John D. Rockefeller** *damaged while stranded in Gulf of Mexico. Concrete patch applied under water by divers.*

7 *S. S.* **St. Paul**, *capsized at her New York pier. Preparing vessel for righting and raising. Successfully floated.*

8 *Derrick* **Monarch**, *350 tons lifting capacity, transporting and placing large oil storage tank, New York Harbor.*

9 *Derrick* **Capitol**, *landing a huge British War Tank used during the Liberty Loan Drives in New York.*

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11 *Derrick* **Colossus**, *placing 56-ton Girders for superstructure of new C. R. R. of N. J. Bridge over Newark Bay.*

12 *S. S.* **Florida** *in dry dock. Showing area of 57-ton bow section handled by the Derrick* **Monarch**.

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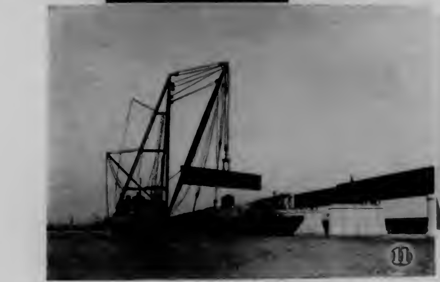
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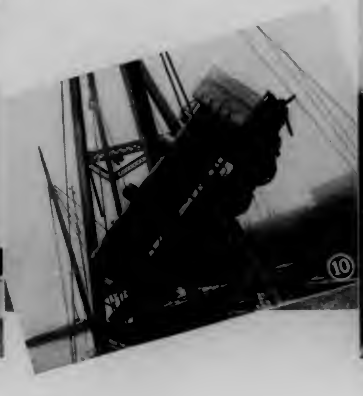
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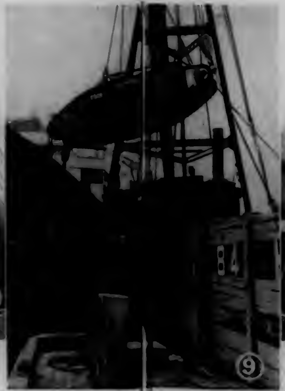
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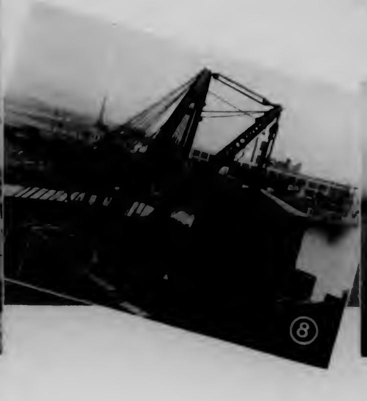
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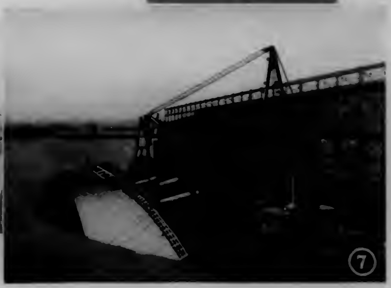
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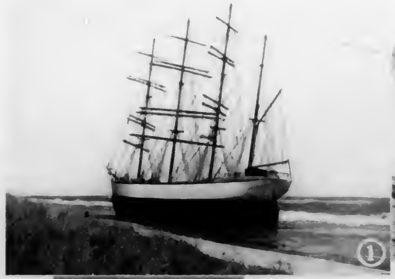

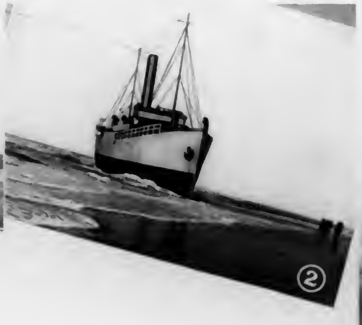

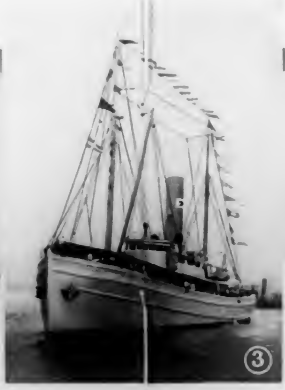

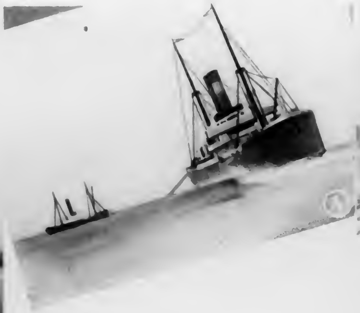

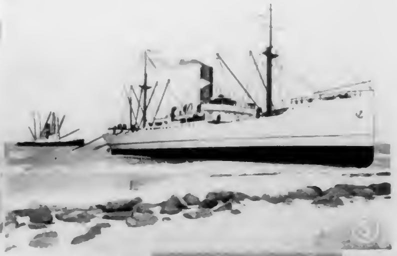

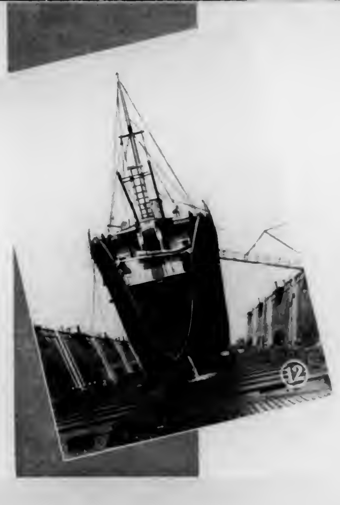

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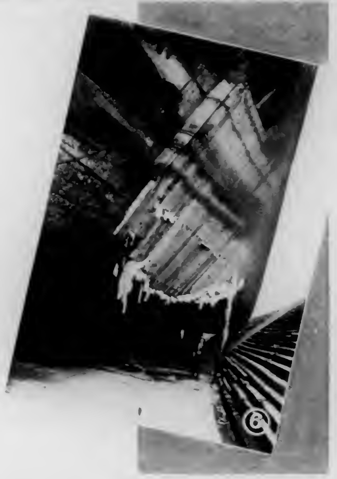
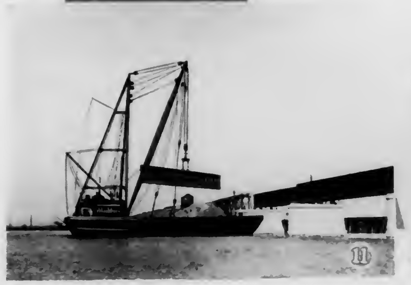
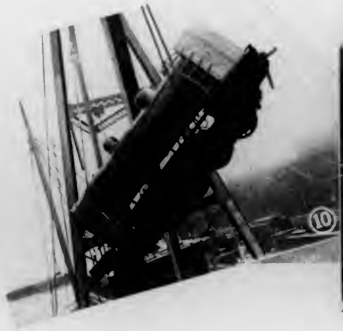
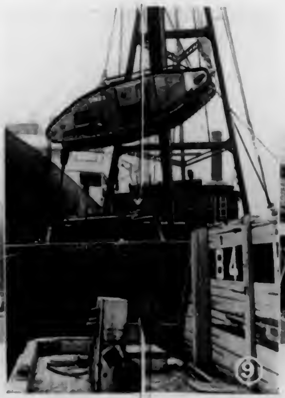
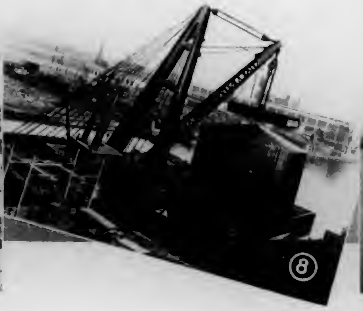
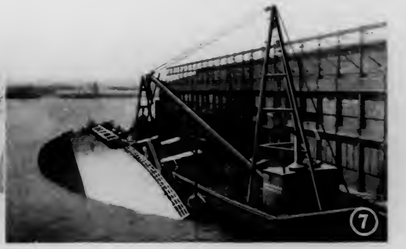


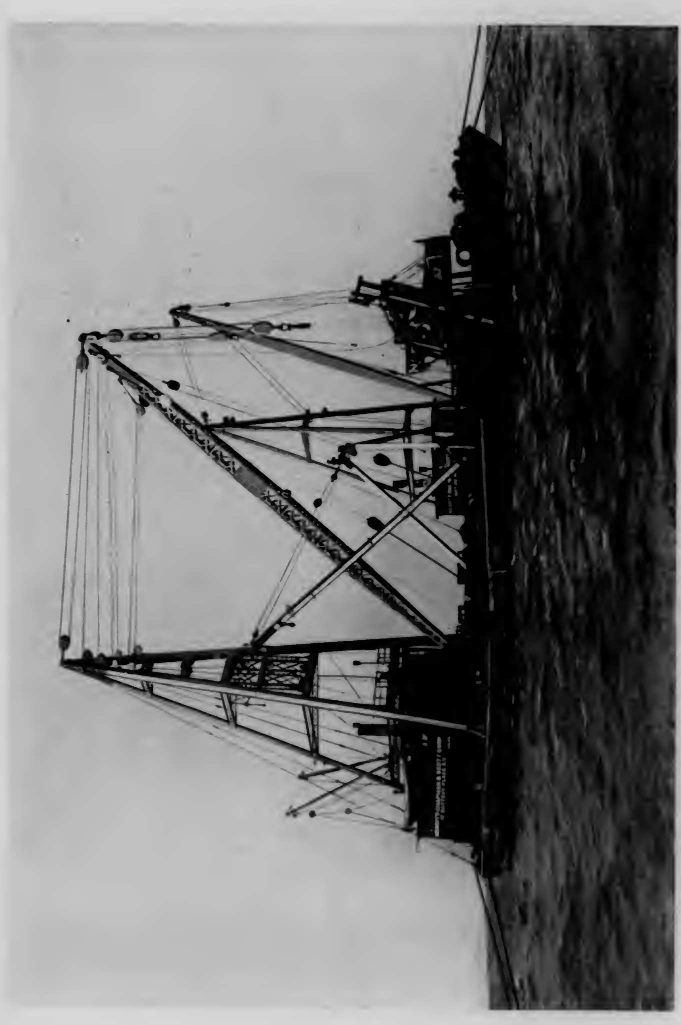












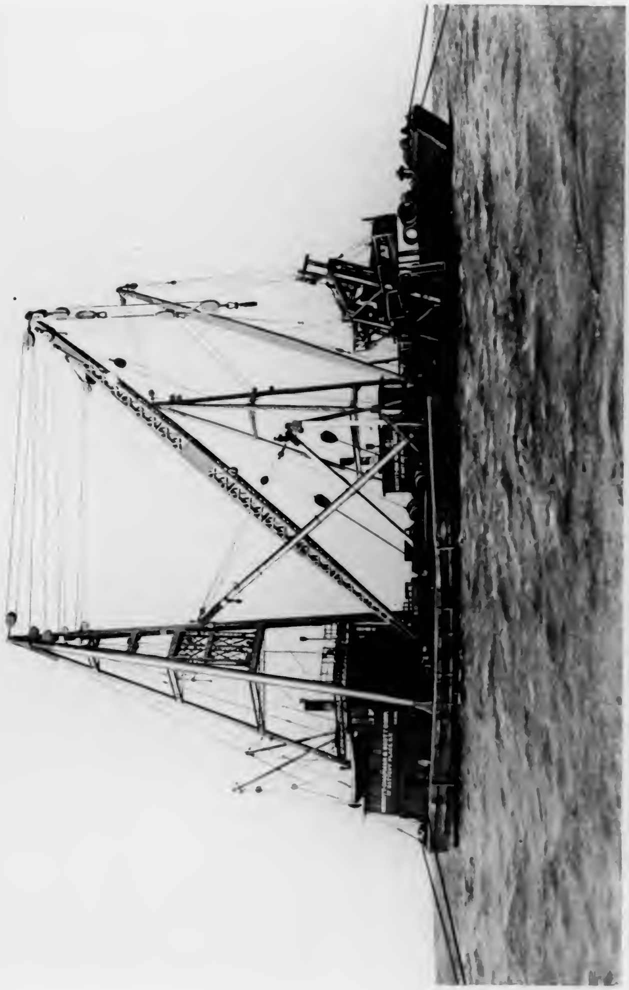
This great Pipe Skid, suspended over the bow of the derrick, is laying subaqueous water mains under New York Bay for the Narrows Siphon supplying Staten Island. A good view of the Skid appears on page twenty-three. This patented device eliminates a vast amount of divers work. It aids in smoothing the bottom, assuring thereby both vertical and horizontal alignment.

Port and Harbor Development in America

BUSINESS men who regularly weigh the figures of national construction activities as factors in their own prosperity, perhaps do not always appreciate how large is the proportion of public funds now flowing into the development of waterways, bridges, ports, terminals and other maritime resources.

¶A ready, though of course incomplete, index to the importance of these items is found in an analysis of the composite funded debt of the forty-eight states, which now aggregates about two billion dollars and exceeds by some sixty million dollars the total national debt of the United States on June 30, 1917, our first war year. This is a per capita obligation of $16.61.

¶Analysis shows that 11.4 per cent of these outstanding debts of the States is devoted to Waterways and Harbors and represents a per capita obligation of more than $1.89, thus utilizing $224,484,800 of public funds. This is exceeded only by two other State debts: the 45.7 per cent assigned to Highways and the 14.5 per cent which will liquidate the Soldiers' Bonus. It is precisely twice the sum provided by the various states for "Funding Operations"; it is more than five times the amount they have allotted to "Education"; more than ten times the allotment to "Public Buildings", and twenty-three times the assignment to "Other Military Purposes".



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This half-mile long Lake Champlain Bridge, when opened, will connect the States of New York and Vermont. In the substructure, which Merritt-Chapman & Scott is building, are some of the deepest foundations ever placed by the open cofferdam method. It is planned to complete the superstructure and open the bridge about Labor Day, 1929.

¶This intensive promotion of natural resources doubtless reflects, in part, the pressure of our industrial development. But it also must indicate somewhat the peculiarly fortunate conditions which for some time have favored public financing: the abundance of funds, the prevalence of the investing habit and the cheapness of money.

¶The situation existing, whatever may be its cause, obviously will make constantly greater demands in the future upon specialized facilities, as the economic and competitive value to communities of their waterfront assets becomes more and more apparent. The extent to which MERRITT-CHAPMAN & SCOTT CORPORATION is prepared to participate in these developments is indicated by the many notable engineering works of a public nature which have been carried out in the recent past and the more than fifty projects now under way throughout the country.

¶When GENERAL GEORGE W. GOETHALS was constructing the extensive port facilities for the Lake Worth Inlet Commission at Palm Beach, Florida, this Company was engaged to build the rubble mound breakwaters and other important work, which involved the construction of temporary railroad trestles in the ocean and other difficult engineering problems.

¶Other interesting development projects include:

¶The Narrows Siphons, Numbers 1 and 2, which carry Staten Island's water under New York Bay from the upstate reservoirs, via Brooklyn, built at a cost of $2,750,000; these involved the dredging of a million cubic yards of material and

the laying of nearly 19,000 feet of thirty-six and forty-two inch submarine pipe line.

¶The Hyperion Outfall Sewer for the City of Los Angeles, which required the laying of more than a mile of seven foot pipe in the bed of the ocean.

¶Breakwaters, piling and concrete work for the construction of a considerable portion of the famous Coney Island "Boardwalk".

¶Building the million dollar Connecticut State Pier at New London.

¶The Washington Bridge at Providence, now under construction for the State of Rhode Island, Washington Bridge Commission, to cost $3,000,000. This bridge over the Seekonk River is nearly a half mile long with its approaches, 80 feet wide, and has a 150 foot steel bascule lift over the channel. It will connect Providence and East Providence, with provision for foot passengers and trolleys, and insures these two busy cities a freedom from traffic congestion which will be unrivalled by any similar cities in the entire East.

¶For the City of Baltimore, Maryland, Port Development Commission, the new McComas Street Pier, costing $1,000,000. This 1,000 foot pier will greatly relieve and improve the already fine water terminals of that city.

¶The State of North Carolina has under way one of the great Highway Improvement programs of the nation. Since January, 1921, bonds for that purpose, totalling $98,500,000, have been issued. An important link in that program has recently been completed by this Company in the construction of two highway bridges at Wilmington, North Carolina, under contract with the State.

Coney Island, one of the world's principal playgrounds, is a magnificent civic development. This Company built about three-quarters of a mile of the famous "Boardwalk", about 3,000 *linear feet of new sand beach, and a spacious plaza of concrete at the foot of Ocean Parkway. Approximately one-half million yards of fill were required by the operation.*

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❡These are only a few projects, to show the direction being taken in public improvements. Other projects under way, completed, or nearing completion, all show a similar trend toward improved highway transit, better sanitation, more abundant social facilities, and modernized freight handling.

❡To summarize, the Company is equipped to make surveys, studies and reports and to prepare plans and specifications for industrial and commercial developments in the interest either of Governments or of private enterprises. It also is prepared to design and construct:

Piers, Bulkheads, Sea Walls
Bridges, Abutments, Highways
Port and Shore Front Developments
Boardwalks, Waterfront Protection
Tunnels, Dams, Earthworks
Water Supply and Pipe Lines
Sewers, Outfalls and Intakes
Subaqueous Foundations
Submarine Cable and Pipe Laying
Dredging and Rock Removal

The City of Lynn, Massachusetts, has a highly developed sewage system. This Company built there an outfall sewer comprising two lines of 60-inch Bell and Spigot Pipe laid on pile foundations, one line 1,300 feet long and one 16,000 feet. View at land end.

"Leviathans" of the Harbor at Work

IN THE ebb and flow of water-borne trade, many strange and unwieldy burdens come to the vessel's side for handling. There are products of every art and industry on the globe, a ceaseless stream of the raw and finished materials that make America dominant.

❡In all the shipping trade there is no other vantage point where so clearly may be seen world commerce, at its most romantic and colorful, as on the deck of the floating derrick. These "Leviathans" of the Harbor are everywhere and at all times busy with their burdens; every tide brings fresh labors for their strength.

❡And variety is their portion. Even the largest liner is equipped to handle only a few tons; the really heavy and bulky lifts fall to the lot of the floating derrick. Nearly fifty such vessels, of MERRITT, CHAPMAN & SCOTT ownership, are constantly at work around New York Harbor and in adjacent waters. Their lifting capacity ranges from 35 tons to 350 tons overside and a number have booms so long that they reach over the rails and even over the upper decks of the tallest ships; there is a derrick of appropriate size within reach for every job. Seated at his desk, day and night, the year 'round, with a chart of the harbor before him, the Company's dispatcher can tell, within minutes, when he can have a derrick at a given spot, ready for work.

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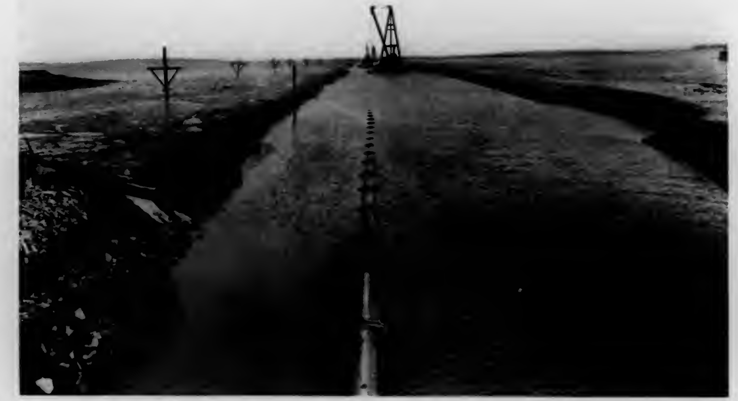

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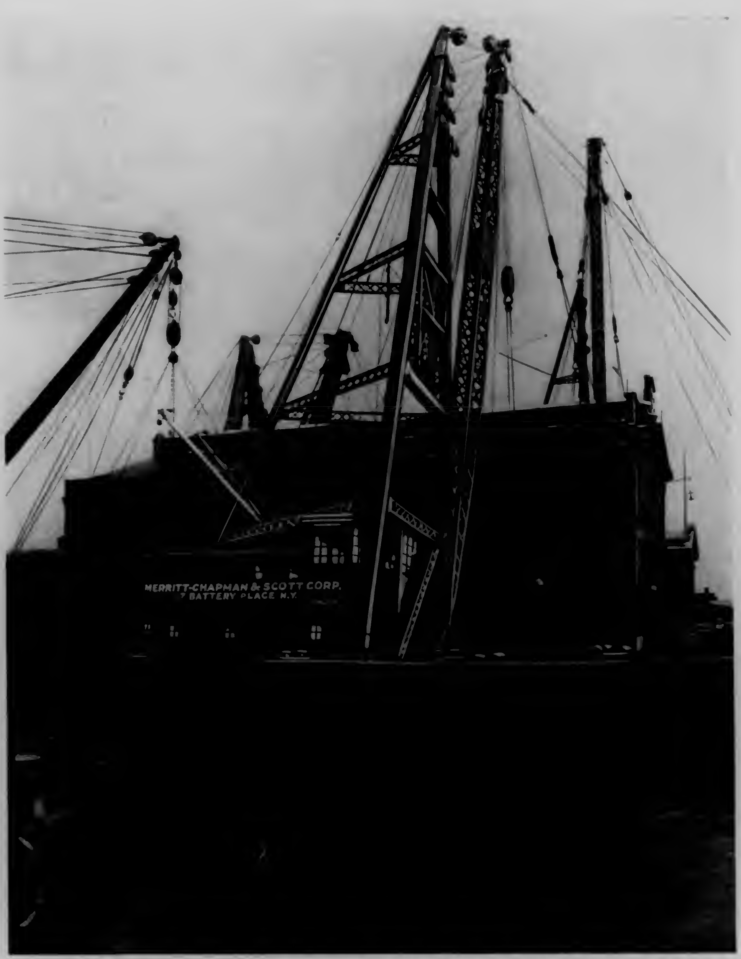


These four floating derricks are not merely standing by. They are lifting a 5-bay section of Clyde Line pier shed, at the Port of New York, and moving it 100 feet to the end of the pier. The floating derrick is the only practicable method of moving many heavy and unwieldy burdens.

¶Much of the lifting, of course, is routine; some of it is sheerly spectacular; all of it interesting.

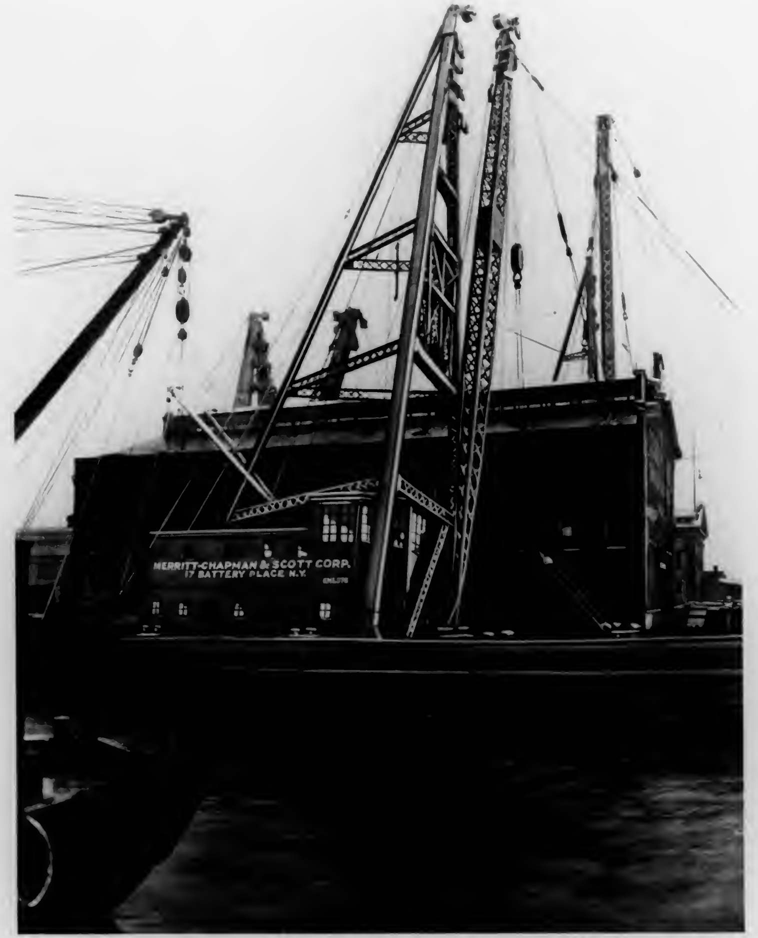
¶Not so long ago the trunk of a giant English oak was hoisted through the hatch of a British ship; it doubtless had grown for a thousand years; but it is furniture by this time, converted by a New York factory, and in its new form is being used and enjoyed in scores of "best homes".

¶A score of marble blocks, weighing thirty-five tons apiece, rise out of the hold of an Italian ship; soon they will be decorating the walls of a New York office building or of a great hotel in the West. But into the hold an airplane may go, or perhaps an electric locomotive or a huge printing press.

¶The safe handling of heavy weights is a fascinating feat of engineering, requiring the greatest of technical skill and experience and the costliest of modern equipment. Pictured elsewhere is a huge steam locomotive; its 90 tons of weight is poised securely above the decks of a freighter which might be sent to the bottom should the wire slings slip. Yet a modern derrick boat, such as the CENTURY, which is holding it there, readily lifts the weight of such a piece and sets it down, light as a feather bed, in the waiting chocks on deck.

¶But it must not be thought that all the interesting jobs of lifting are made so by great weight; quite frequently it is the precision and delicate handling required that makes the work notable. For example, there is another picture here which shows a beautifully-proportioned Dutch type yacht, built in Antwerp for a wealthy American. Its trim hull is light and shell-like. Yet, with thin steel

More than a hundred American-built busses such as these are now running on the good roads of Porto Rico; all were placed aboard ship by the floating derricks. Like many other jobs that come to the Black Horse Fleet, these were quick, "careful" lifts rather than heavy ones.



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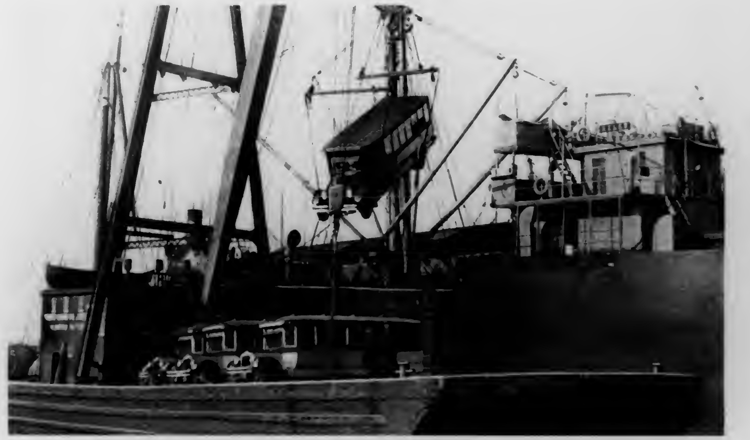

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Hoisting Marble is one of the staple jobs of the heavy lifter in New York Harbor. The floating derrick not only lifts the 15 to 35 ton blocks but transports them to on-cars, Railroad Terminals and to Marble Storage Yards.

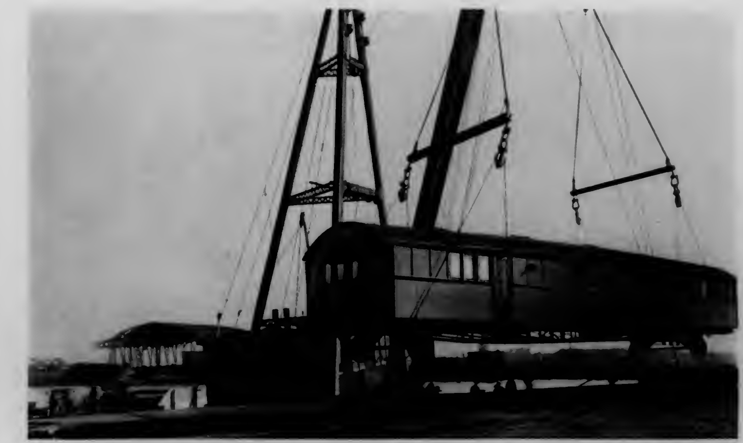
cables run under the keel as she lay on the deck of a freighter, she was raised in the air and set down as tenderly as if she had been a crate of eggs.

❡Nor are all the lifts that stir imagination confined to inanimate things. We may ship hydroelectric machinery to India to light the streets of her ancient cities but she in turn sends us an occasional elephant, sad and disconsolate as he swings a hundred feet in the air, with the Hudson River, several fathoms deep, beneath him. And there have been tigers, and leopards, and zebras and sea lions. Even a giraffe or so has tried with his neck to outstretch the boom of a derrick.

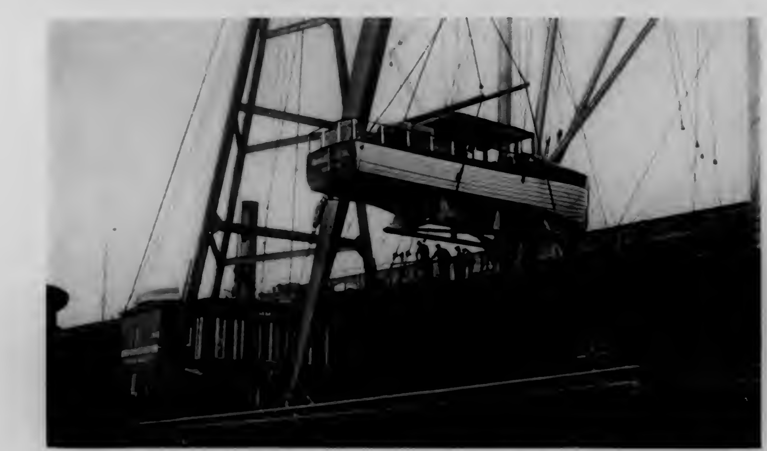
❡These are strangely assorted jobs and their number is great but, even so, not great enough to keep busy the fleet of fifty floating derricks which make headquarters at the Rosebank, Staten Island, station of the Company. Besides the constant demands of hoisting and heavy lighterage, every year, almost every week sees some new development along the 771 miles of the Port of New York shoreline.

❡The business of this port grows amazingly; its water-borne tonnage has grown nearly two-thirds since 1913; its net value in 1926 was fourteen and three-quarter billions of dollars. Ten thousand ocean-going vessels a year ply its waters, besides the normal harbor and coastwise shipping. Bridges are being built which need the heavy derrick, ships tower higher above their docks and the bulk and weight of pieces to be handled constantly increases.

❡Thus, there is continual employment, in one or another branch of the Company's business, for the marine heavy lifter and his gigantic tools.



This luxurious wheeled Diner is en route to Pawtucket, R. I. 60 feet long, 14 feet wide, weight 35 tons, it could not travel either by railroad or highway.



No work for the Motor Yacht BALLYHOO IV *on this cruise. It is being hoisted gently aboard the S. S.* MEDINA, *en route to Southern waters. It is 40′ x 9′ 11″ x 12′ and weighs 10 tons.*

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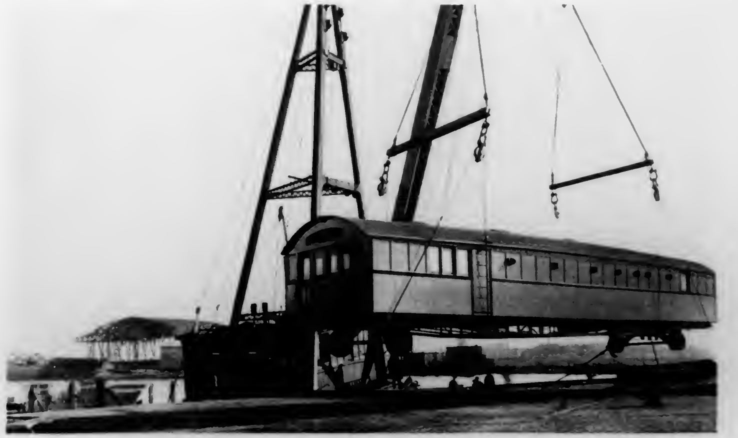

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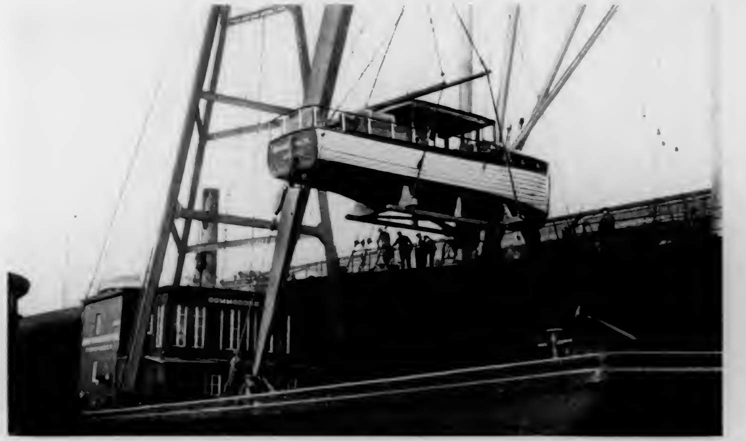

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The Black Horse Fleet corps of divers numbers more than twice this many men. They are skilled artisans, with an average individual experience probably not to be found in any other group. Day or night, summer or winter, these men are always available for emergency service.

Exploring Davy Jones' Locker

SALTY as sea-weed is the glamorous calling of deep water diving. The helmet is as characteristic of the sea as is the anchor. Working alone, in the most ruthless of the elements, the diver is and deserves to be one of the traditional figures of bravery. Homer in the Iliad sang of these naked heroes. Thucydides records how, at the Siege of Syracuse, divers went down to clear away the cunningly-placed obstructions meant to bar the Grecian ships from the harbor. Alexander the Great employed divers at the siege of Tyre to destroy the submarine defences of the beleaguered city.

¶But it is not of the wars of bygone Kings nor of these "one breath" Mermen of the past that one thinks today. It is of the courage, the skill, the amazing resourcefulness of the modern guild of divers, who have brought new developments to this trade which was a thousand years old when the Christian era came. These men, cased in their precarious armor of canvas and rubber and weighted with metal, the very breath of life pumped down to them from the free air above, can do with their hands almost any task that a skilled mechanic can do on dry land.

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¶The diver, however, is by no means a mere observer. His is a versatile craft, utilizing ability and experience of many kinds, in a great variety of work other than ship salvage. Imagine the ingenuity required of a man who must go down under the black waters of a harbor and measure a jagged hole, may be twenty feet square, in the side of a sunken vessel; measure it so accurately that when he fits his patch, again in the dark, the result will be entirely watertight! These patches may be of wood, constructed on the deck of the salvage steamer, or they may be of concrete, lowered down through the water in a canvas bucket and tamped into the forms by a sense of feel. He is a master in the use of air drills, dynamite and the under-water cutting torch, in breaking up and preparing for removal of vessels which are damaged beyond recovery and are a menace to navigation. It is he who, under the salvage officer's direction, sets the slings around heavy submerged burdens so that the derricks may lift them with safety and precision.

¶In maintenance and construction work around deep water, too, his service is indispensable. More than two score divers are available in this organization who have had an intensive and highly specialized experience: in the laying of submarine pipe lines, in the construction and maintenance of outfall sewers and of intake systems, in the clearing of channels, in substructure work on bridges, docks, piers, breakwaters and jetties; on every type of subaqueous work, in fact.

Even three giant Salvage Pumps, handling several thousand gallons per minute, were losing the race with the inrushing water until this diving crew of three came to the rescue. They patched seven gaping holes in the hull of this large Drydock and it was floated within two days.

It is to pave the way for large suctions such as this one that the diver goes down to place his patches. Several pumps often are used at one time. This gasoline engine driven 12 inch salvage pump handles 3600 gallons per minute. Other types operate submerged.

¶Most of the men who dive from vessels of the "Black Horse" fleet have been members of the organization for many years. The "dean" of the divers corps has served this and its predecessor organizations for fifty-two years. The volume, variety and importance of the work are such that the ablest and most ambitious men in the trade are attracted and retained.

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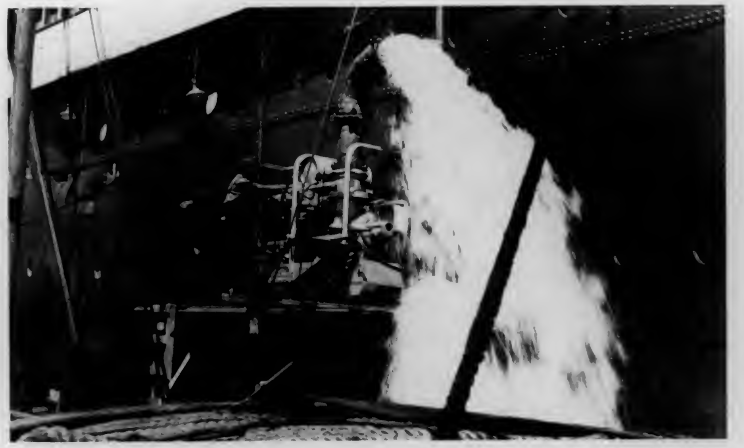

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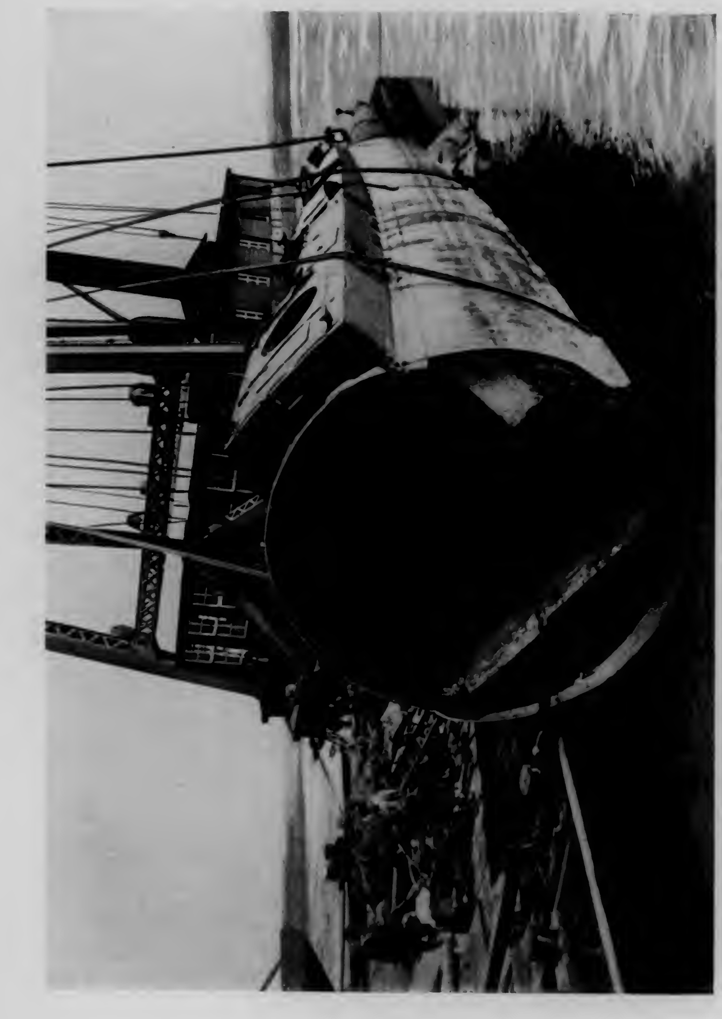
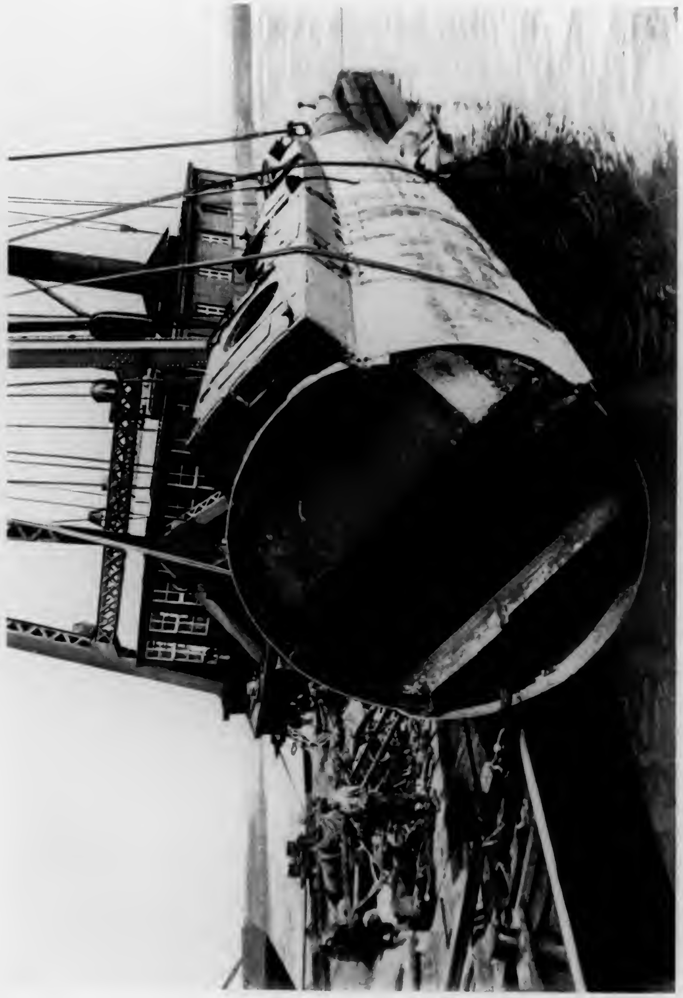


An obsolete submarine, of pre-war days, about to be scrapped, sank during a storm and was wedged under the stern of a discarded battleship. She became an easy lift for the large floating derrick when cut into three sections by the Underwater Cutting Torch.

Burning Metals Under Water

ALMOST everybody, passing along the street at some time, has shielded his eyes from the blinding glare of the oxy-acetylene torch or the electric arc in action. It is a fascinating and familiar sight. But, for obvious reasons, almost no one has ever seen the Oxy-Electric Underwater Cutting Torch at work except the divers who operate such torches and a handful of others who have watched small-scale demonstrations in glass tanks. This in spite of the fact that this torch has been successfully used in subaqueous operations since 1918 and has been an important aid in salving literally millions of dollars value in sunken ships. The device and its use under water make so novel a combination that a brief description may not be amiss.

❡When the development of an underwater cutting torch was first considered, it was decided to combine an acetylene flame with an electric arc; but tests soon showed that the acetylene was unnecessary and moreover that its explosive character, when under any considerable water pressure, was an actual danger. The torch finally adopted, therefore, is a hybrid of another type, employing a combination of the electric arc and compressed oxygen from cylinders. This unusual combination is the chief difference from the usual type of torch



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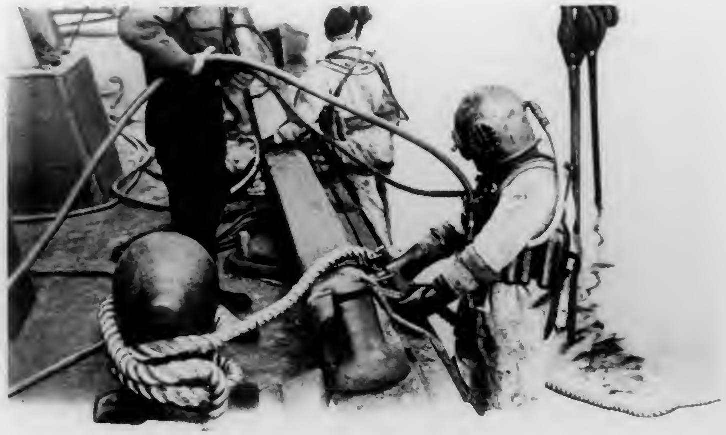

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❡The essentials of this patented method are simple. It utilizes electricity from a generator and oxygen from cylinders. A rubber hose encloses an electrical conductor and also carries the oxygen down to the diver, thus supplying the electrode, which has orifices for oxygen. The diver establishes the circuit by connecting one lead from the generator to the plate to be cut and, torch in hand, striking his arc.

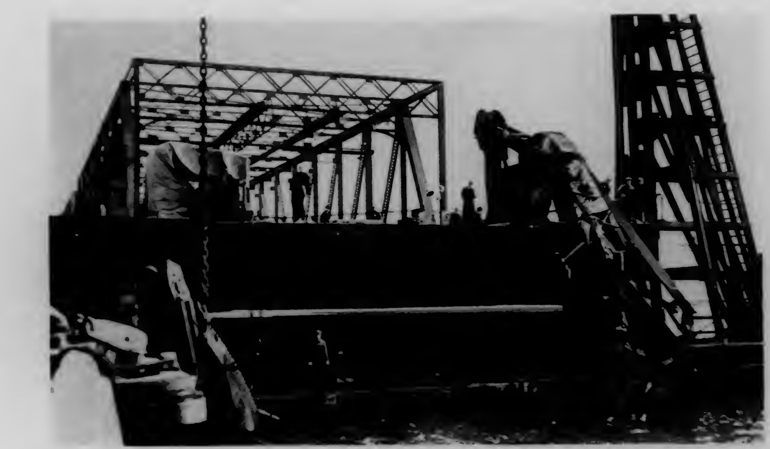
❡It was the *S. S. St. Paul* which, in 1918, first benefitted by the process and provided the first opportunities for experiment. This vessel on April 25, 1918, turned completely over on its side and sank between Piers 60 and 61, North River. The salvage plan required the cutting of large drainage holes from adjoining compartments into the ventilators so that mud and water would drain into the holds, there to be removed by pump suctions; also, several 18 inch diameter holes were cut through bulk heads. September 27, 1918, five months and two days later, the *St. Paul* was delivered afloat, the raising having been considerably facilitated by the underwater cutting operations, which were done at a depth of fifty feet below the surface.

❡The practicability of the method thus firmly established, there came many opportunities to put it to use and perfect the technique until, today, the MERRITT-CHAPMAN & SCOTT divers, to a man, have become skilled in its use and apply it to a wide range of purposes for which other and far cruder methods formerly were used.

❡For example, one leaf of the Lincoln Highway Bridge over the Hackensack River in Jersey City recently collapsed, blocking the channel and suspending traffic. It was night, but one of the Company's largest floating derricks was on the scene within a couple of hours. An examination disclosed, however, that the steel wreckage, weighing hundreds of tons, was so wedged under and around a 700 ton mass of concrete that, to hoist it, was beyond the power even of this huge lifting machine. The tangled mass of steel and concrete lay almost touching the piers on either side; quite obviously the use of dynamite was out of the question. The underwater cutting torch was not only the best, it was the only practical method of removal. So the divers went to work with their torches, cutting the fragments to size for handling by derricks, with the result that both river and road traffic were resumed in record time, days sooner than would otherwise have been possible.

❡A great liner recently came into New York Harbor with two manganese bronze propellor blades so bent that she lost one knot an hour speed. In the 48 hours she lay there, the two bent sections were cut free by the torch method, underwater; she sailed on time and saved a trip to dry dock.

❡Another vessel had two propellor blades broken off 18 to 24 inches from their tips, thus unbalancing her propellor. Cutting down the other two blades restored it to balance.



One side of the heavy bascule span of this Hackensack River Bridge collapsed one night, disrupting traffic over the Lincoln Highway into Jersey City and New York. But huge fragments were quickly reduced to handling size by the Underwater Cutting Torch, making way for a temporary bridge. Service was restored in record time.

❡In the marine contracting activities of the Company, innumerable opportunities to use the Underwater Cutting Torch are encountered, notably in bridge and pier construction. In maintenance work, too, many interesting problems are solved. An instance is a job done for a large paper company at Erie, Pa. It was February and Lake Erie was covered with 14 inches of ice at the site. A 48 inch steel intake pipe, extending out 2,000 feet from shore, showed baffling signs of stoppage. The diver found no obstruction in cribbing or strainer at the mouth of the pipe; it must be inside. Yet no diver would dare try to drag 2,000 feet of air line through that pipe, buried under six to twenty-five feet of icy water; his line would freeze and he would suffocate. This was the solution: Manholes were cut each 300 feet with the underwater torch. On Sunday, when the main pumps were shut down, two divers made a thorough examination. The only obstruction proved to be an air pocket at a high spot; when this was vented, full flow was restored. The manholes, of course, are available for any future emergency and for cleaning.

❡This highly specialized department of the Company's business, underwater cutting, which combines the work of two skilled trades within its scope, is under the direction of competent engineering specialists who have had long experience in the work. Operators are sent to every section of the country for a great variety of jobs and a thriving demand is enjoyed from other contractors and corporations who find it satisfactory and economical to employ these facilities.

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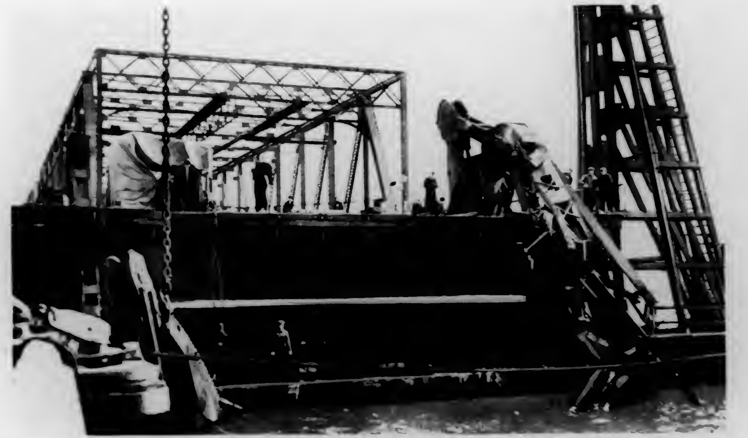
¶For example, one leaf of the Lincoln Highway Bridge over the Hackensack River in Jersey City recently collapsed, blocking the channel and suspending traffic. It was night, but one of the Company's largest floating derricks was on the scene within a couple of hours. An examination disclosed, however, that the steel wreckage, weighing hundreds of tons, was so wedged under and around a 700 ton mass of concrete that, to hoist it, was beyond the power even of this huge lifting machine. The tangled mass of steel and concrete lay almost touching the piers on either side; quite obviously the use of dynamite was out of the question. The underwater cutting torch was not only the best, it was the only practical method of removal. So the divers went to work with their torches, cutting the fragments to size for handling by derricks, with the result that both river and road traffic were resumed in record time, days sooner than would otherwise have been possible.

¶A great liner recently came into New York Harbor with two manganese bronze propellor blades so bent that she lost one knot an hour speed. In the 48 hours she lay there, the two bent sections were cut free by the torch method, underwater; she sailed on time and saved a trip to dry dock.

¶Another vessel had two propellor blades broken off 18 to 24 inches from their tips, thus unbalancing her propellor. Cutting down the other two blades restored it to balance.



One side of the heavy bascule span of this Hackensack River Bridge collapsed one night, disrupting traffic over the Lincoln Highway into Jersey City and New York. But huge fragments were quickly reduced to handling size by the Underwater Cutting Torch, making way for a temporary bridge. Service was restored in record time.

¶In the marine contracting activities of the Company, innumerable opportunities to use the Underwater Cutting Torch are encountered, notably in bridge and pier construction. In maintenance work, too, many interesting problems are solved. An instance is a job done for a large paper company at Erie, Pa. It was February and Lake Erie was covered with 14 inches of ice at the site. A 48 inch steel intake pipe, extending out 2,000 feet from shore, showed baffling signs of stoppage. The diver found no obstruction in cribbing or strainer at the mouth of the pipe; it must be inside. Yet no diver would dare try to drag 2,000 feet of air line through that pipe, buried under six to twenty-five feet of icy water; his line would freeze and he would suffocate. This was the solution: Manholes were cut each 300 feet with the underwater torch. On Sunday, when the main pumps were shut down, two divers made a thorough examination. The only obstruction proved to be an air pocket at a high spot; when this was vented, full flow was restored. The manholes, of course, are available for any future emergency and for cleaning.

¶This highly specialized department of the Company's business, underwater cutting, which combines the work of two skilled trades within its scope, is under the direction of competent engineering specialists who have had long experience in the work. Operators are sent to every section of the country for a great variety of jobs and a thriving demand is enjoyed from other contractors and corporations who find it satisfactory and economical to employ these facilities.

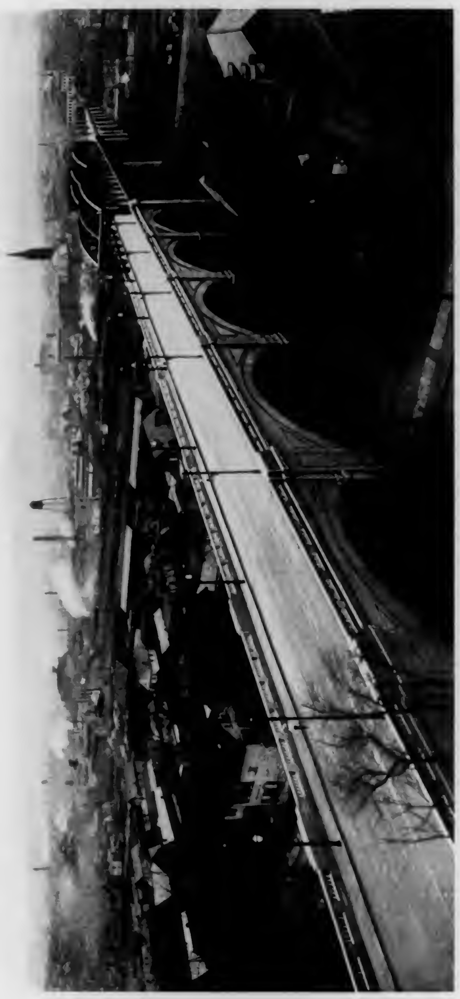
The South Street Bridge, a viaduct recently built for the City of Wilkesbarre, Pa., carries a heavy traffic across the main line tracks of three important railroads. It is 2000 feet long, with 38 feet roadway. Such developments are favored increasingly for public safety and convenience.

Combining Land and Water Forces

THE modern trend toward consolidation is responsible for many conspicuously useful organizations. When well-mated, the result quite frequently is to increase effectiveness while decreasing the overhead.

¶On January 1, 1929, this Company effected an especially appropriate and desirable coalition when it acquired the good-will, plant and construction business of the McLEAN CONTRACTING COMPANY, of Baltimore. That Company was essentially a General Contractor,' successful in its field for twenty-five years. Though it built bridges, docks and piers, as does MERRITT-CHAPMAN & SCOTT, the two companies were more complementary than competitive and it already has been demonstrated that their joining has broadened the opportunities and strengthened the personnel of the organization.

¶The career of the McLEAN CONTRACTING COMPANY has been an active and interesting one. It was founded in 1903 by COLIN McLEAN, once a principal in DEGNON-McLEAN CONTRACTING COMPANY, of New York, a leading general contractor of its day and builder of important sections of the subway system, of bridges and many other public works in and around the metropolitan area. MR. McLEAN, who was famed for the energy and ingenuity of his engineering methods, was first drawn to Baltimore by a contract awarded the DEGNON-McLEAN CONTRACTING COMPANY by the Western Maryland Railroad for an extensive pier development. While engaged in that work, he saw the possibilities of build-



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❡On January 1, 1929, this Company effected an especially appropriate and desirable coalition when it acquired the good-will, plant and construction business of the McLean Contracting Company, of Baltimore. That Company was essentially a General Contractor, successful in its field for twenty-five years. Though it built bridges, docks and piers, as does Merritt-Chapman & Scott, the two companies were more complementary than competitive and it already has been demonstrated that their joining has broadened the opportunities and strengthened the personnel of the organization.

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¶Meanwhile, a strong organization had been assembled, the development of Chesapeake Bay and its tributaries was getting under way and an active career had been launched which was to extend the Company's business into ten states and so firmly establish it that not even the death of the founder, which occurred in 1916, could permanently check its growth.

¶Many important jobs came the way of the young Company, including one which was to be of great assistance in establishing its reputation, namely, the Norfolk-Southern Bridge across Albemarle Sound, five miles long, which is still in use. Many engineering problems were encountered in the construction of this bridge.

¶The Baltimore & Ohio Railroad employed the Company to build many of its water terminal facilities, including some of its largest piers, and, as time went on, not only the railroads but the Government and various states and cities entrusted extensive projects to the McLEAN CONTRACTING COMPANY; indeed, the Company has enjoyed a constantly increasing volume of business.

¶The Company constructed the system of Docks and Railroad Yards at the Indian Head Proving Grounds of the United States Navy; the Navy Fuel Oil Wharf at Yorktown, Virginia, the first on the Atlantic Coast; it built approximately fifteen miles of railroad in connection with the Navy Mine Depot at Yorktown, as well as various bulkheads and piers on the Potomac, York and James Rivers for the United States Navy, Bureau of Yards and Docks.

Section of the $1,500,000 substructure for Pier 80, the largest pier owned by the City of Philadelphia; one of the many Port and Sanitary Developments carried out for that city.

¶The substructure for Pier 80, South Wharf, the largest pier in Philadelphia, is another project carried through by the McLEAN organization at a cost of $1,500,000, and many other bulkheads, piers and municipal improvements for that city. Among the most important of these undoubtedly was the Wingohocking Sewer Development in North Philadelphia, completed in 1927. This project made possible the development of about 1,000 acres of valuable property, part of which is industrial and part residential, and a considerable stretch of the Pennsylvania Railroad's industrial trackage now rests on a fill thirty feet above the level of the mains then laid. The work included the enclosing of an open stream in a concrete tunnel 22 x 24 feet.

¶Other recent projects include an extensive port development for the City of Wilmington, Delaware. This work will add about one-third to Wilmington's present port development and embraces bulkheads, railroad trackage, dredging and other work.

¶For the New Jersey State Highway Department, at Camden, a project known as the Federal Street Elevation, which provides access to the new Interstate Bridge without crossing street car tracks at grade.

¶For the Department of Water Supply, Reading, Pennsylvania, a Dam which required 35,000 yards of Concrete and involved 50,000 yards of rock excavation has just been completed across Maiden Creek at Leesport.

¶Water for use of the City of Washington, D. C., is carried 14 miles from Great Falls on the Potomac River; formerly it was carried through a brick aqueduct. This Company, under direction of the United States Engineer in Charge of Water Supply for the District of Columbia, constructed a section of the new aqueduct to replace the old system. Fifty thousand cubic yards of rock were removed in the building of this section; the blasting called for a high degree of skill and care, as it was necessary to blast within one foot of the old brick aqueduct while it was in service.

¶Many excellent examples of achievement might be cited in a large variety of projects for leading railroads such as the Pennsylvania, Baltimore & Ohio, Reading, Chesapeake & Ohio, Southern, Virginian, Western of Maryland, involving the construction of Coal Piers, Merchandise Piers, Bulkheads, Grain Elevators, Trackage, Rock Tunnels and similar facilities. The combined plant and personnel constitute an organization which both experience and facilities equip for superior service in large projects on land and water.

The $3,000,000 Washington Bridge, now under construction for the State of Rhode Island. It will connect Providence and East Providence and greatly simplify their traffic problems.

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